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EXAMINER	
WYATT, KEVIN S	

ART UNIT	PAPER NUMBER
2878	

NOTIFICATION DATE	DELIVERY MODE
11/12/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/573,095	HAAS ET AL.	
	Examiner	Art Unit	
	Kevin Wyatt	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 22-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 22-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *0608*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment after non-final and remarks filed on 07/14/2008. Currently, claims 1-15 and 22-32 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5, 15 and 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 5, 15 and 26, is not clear how an LED is a detector.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-5, 10, 14-15, 23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Vriens (U.S. Patent No. 5,813,753).

Regarding claim 1, insofar as understood, Vriens shows Fig. 4, a radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum at a predetermined wavelength λ_0, radiation detector comprising at least one semiconductor chip (41, i.e., LED stack)(since the semiconductor chip of claim 26 is recited as an LED chip, the semiconductor chip of the above prior art having the same structural limitations may also be disclosed as an LED chip) and at least one optical filter (47, i.e., SWP filter), wherein the at least one semiconductor chip (41) comprises at least one III-V semiconductor material (AlGaAs or InGaAlP); the at least one optical filter (47) is disposed outside the at least one semiconductor chip (41), and the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one semiconductor chip (41)(col. 3, lines 50-54).

Regarding claim 3, insofar as understood, Vriens shows Figs. 4-5, a radiation detector comprising at least one semiconductor chip (41 or 51, i.e., LED stack)(since the semiconductor chip of claims 5 and 15 is recited as an LED chip, the semiconductor chip of the above prior art having the same structural limitations may also be disclosed as an LED chip) and operative to detect incident radiation according to a standard spectral sensitivity distribution of the human eye (col. 3, lines 50-54), wherein the at least one semiconductor chip (41) contains at least one III-V semiconductor material (AlGaAs or InGaAlP).

Regarding claim 4, Vriens shows Figs. 4-5, further comprising at least one optical

filter (SWP (47) or phosphor layer) that is disposed outside the at least one semiconductor chip (41 or 51), wherein the at least one and optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than a wavelength λ_0' of a sensitivity maximum of the human eye (col. 3, lines 50-54), and transmit filtered radiation to the at least one semiconductor chip.

Regarding claims 5 and 26, Vriens discloses wherein the at least one semiconductor chip is an LED chip.

Regarding claim 10, Vriens discloses wherein the at least one optical filter comprises a plurality of filter particles (phosphor grains).

Regarding claim 14, Vriens discloses wherein the at least one III-V semiconductor material is $In_xGa_yAl_{1-x-y}P$, and wherein $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$.

Regarding claim 23, Vriens shows Fig. 5, wherein the filter layer (phosphor layer) extends over an entire face of the at least one semiconductor chip (51).

Regarding claim 15, Vriens discloses wherein central emission wavelength of the LED chip is in an infrared region of the spectrum (uses a long wave pass filter (LWP) for the infrared portion of the spectrum).

5. Claims 1-4, 11-13, 24-25, and 29-32 rejected under 35 U.S.C. 102(e) as being anticipated by Grunert (U.S. Patent No. 2005/0072908 A1).

Regarding claim 1, Grunert shows in Figs. 1-4, a radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum (see Fig. 4) at a predetermined wavelength λ_0, radiation detector

comprising at least one semiconductor chip (1, i.e., sensor chip) and at least one optical filter (2, i.e., interference filter structure), wherein the at least one semiconductor chip comprises at least one III-V semiconductor material (InGaAs diodes having a similar shaped base sensitivity as silicon pin diodes); the at least one optical filter (2) is disposed outside the at least one semiconductor chip (1), and the at least one optical filter (2) is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one semiconductor chip (1).

Regarding claim 3, Grunert shows in Figs. 1-4, a radiation detector comprising at least one semiconductor chip (1, i.e., sensor chip) and operative to detect incident radiation according to a standard spectral sensitivity distribution of the human eye, wherein the at least one semiconductor chip comprises at least one III-V semiconductor material (InGaAs diodes having a similar shaped base sensitivity as silicon pin diodes).

Regarding claim 32, Grunert shows in Figs. 1-4, a radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum at a predetermined wavelength λ_0, the detector comprising: at least one semiconductor chip (1, i.e., sensor chip) comprising a filter layer; and at least one III-V semiconductor material (InGaAs); and at least one optical filter (2, i.e., interference filter structure) disposed outside the at least one semiconductor chip (1), wherein the at least one optical filter (2) is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one

semiconductor chip (1).

Regarding claim 2, Grunert discloses wherein the predetermined spectral sensitivity distribution is a standard sensitivity distribution of a human eye (paragraph 0054).

Regarding claim 4, Grunert shows in Figs. 1-4, further comprising at least one optical filter (2) that is disposed outside the at least one semiconductor chip (1), wherein the at least one and optical filter (2) is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than a wavelength λ_0' of a sensitivity maximum of the human eye, and transmit filtered radiation to the at least one semiconductor chip (1).

Regarding claims 11 and 29, Grunert discloses wherein the at least one semiconductor chip comprises a filter layer.

Regarding claims 12 and 30, Grunert discloses wherein filter layer absorbs radiation having a wavelength that is smaller than λ_0'.

Regarding claim 13, Grunert discloses wherein the radiation detector has a detector sensitivity such that at an arbitrary wavelength, a difference between corresponding values of the detector sensitivity and the standard spectral sensitivity distribution of the human eye is less than 40% (paragraph 0016).

Regarding claim 24, Grunert discloses wherein the difference between corresponding values of the detector sensitivity and the standard spectral sensitivity distribution of the human eye is less than 25% (paragraph 0016).

Regarding claim 25, Grunert discloses wherein the radiation detector is

configured for use as an environmental light sensor.

Regarding claim 31, Grunert discloses wherein the at least one III-V semiconductor material is $In_xGa_yAl_{1-x-y}As$, and wherein $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$ for the at least one semiconductor material (paragraph 0056).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6, 22 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grunert (U.S. Patent No. 2005/0072908 A1).

Regarding claims 6, 22 and 27-28, Grunert discloses the claim invention as stated above. Grunert does not disclose wherein a sensitivity distribution of the at least one semiconductor chip exhibits at least one maximum at a wavelength λ_1, and wherein a difference between λ_1 and λ_0 is 50 nm or less as recited in claims 6 and 27, or the difference between λ_1 and λ_0 is 15 nm or less as recited in claims 22 and 28. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum "ranges, or measurements" involves only routine skill in the art. It would have been obvious to one skilled in the art to provide the tolerances recited above for the purpose of optimizing spectral bandwidth of radiation detector.

6. Claim 1, 3-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning (U.S. Patent No. 3,903,413) in view of Grunert (U.S. Patent No.

2005/0072908 A1).

Regarding claim 1, Manning shows in Figs. 1-2 a radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum at a predetermined wavelength λ_0, radiation detector comprising at least one semiconductor chip (1, i.e., photocell) and at least one optical filter (filter glass particles (3) embedded in plastic resin (2)); the at least one optical filter is disposed outside the at least one semiconductor chip (1), and the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation ~~of~~ having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one semiconductor chip. Manning does not disclose wherein the at least one semiconductor chip comprises at least one III-V semiconductor material. Grunert discloses substituting InGaAs diodes in place of silicon pin diodes (paragraph 0056). It would have been obvious to one skilled in the art to provide a semiconductor chip providing a material such as disclosed in Grunert to the device of Manning for the purpose of providing the appropriate spectral sensitivity for larger amounts of incident radiation.

Regarding claim 3, Manning shows in Figs. 1-2 a radiation detector comprising at least one semiconductor chip (1, i.e., photocell) and operative to detect incident radiation according to a standard spectral sensitivity distribution of the human eye. Manning does not disclose wherein the at least one semiconductor chip comprises at least one III-V semiconductor material. Grunert discloses substituting InGaAs diodes in place of silicon pin diodes (paragraph 0056). It would have been obvious to one skilled

in the art to provide a semiconductor chip providing a material such as disclosed in Grunert to the device of Manning for the purpose of providing the appropriate spectral sensitivity for larger amounts of incident radiation.

Regarding claim 4, Manning shows in Figs. 1-2 further comprising at least one optical filter (filter glass particles (3) embedded in plastic resin (2)) that is disposed outside the at least one semiconductor chip (1), wherein the at least one and optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than a wavelength λ_0' of a sensitivity maximum of the human eye, and transmit filtered radiation to the at least one semiconductor chip (1).

Regarding claim 7, Manning shows in Fig. 2 wherein detector comprises an encapsulation (2) that at least partially surrounds said the at least one semiconductor chip (1).

Regarding claim 8, Manning shows in Fig. 2 wherein the encapsulation contains a resin.

Regarding claim 9, Manning shows in Fig. 2 wherein the at least one optical filter is disposed at least partially inside, outside and/or on the encapsulation and/or the encapsulation forms the at least one filter.

Response to Arguments

7. Applicant's arguments, see pages, filed 07/14/2008, with respect to the rejection of claims 1-4, 7-10, 16-21 under 35 U.S.C. 102(b) as being anticipated by Manning (U.S. Patent No. 3,903413), 1, 5, 11-12, 14-15 under 35 U.S.C. 102(b) as being

anticipated by Starikov (Publication No. U.S. 2002/0074553 A1) and 1-4 have under 35 U.S.C. 102(b) as being anticipated by Nixon (Publication No. U.S. 2003/0122060 A1) been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Grunert (U.S. Patent No. 2005/0072908 A1) and Vriens (U.S. Patent No. 5,813,753).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin Wyatt/
Examiner, Art Unit 2878

/Thanh X Luu/
Primary Examiner, Art Unit 2878